Defense Information Systems Agency

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Enterprise Infrastructure Reference Implementation (EIRI)

DISA CTO

The Situation and a Better Solution

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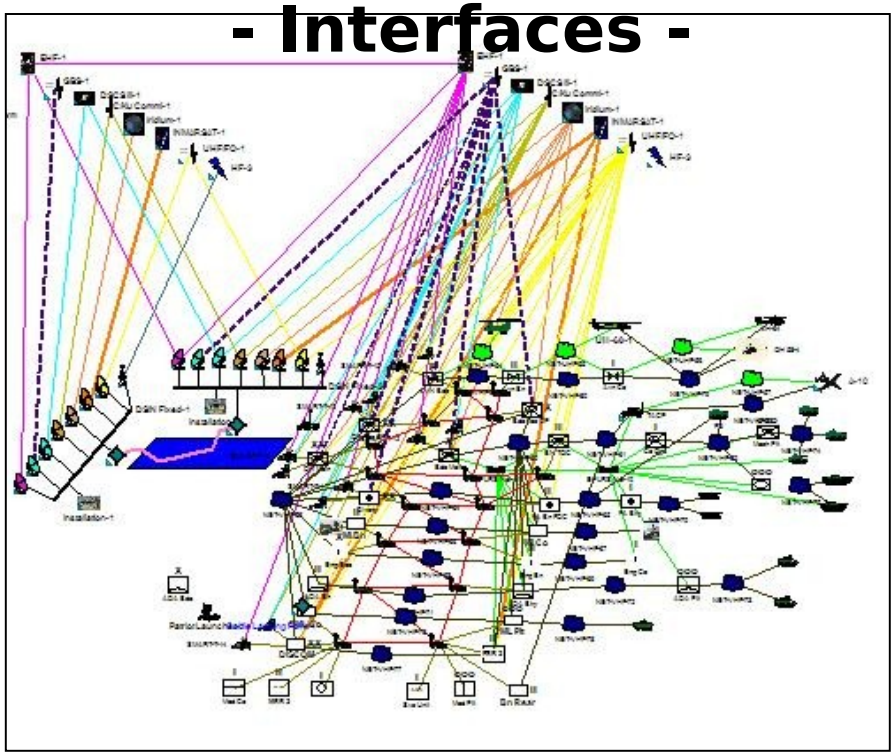
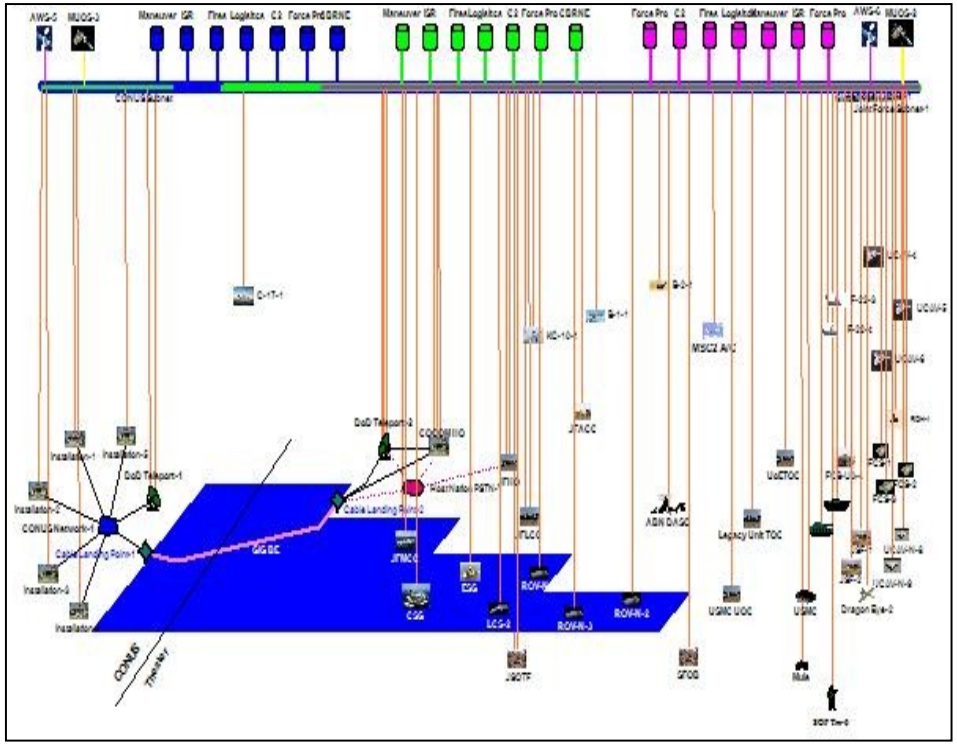
Today's Pt-to-Pt Quagmire - Interfaces -



Based on socialization – call a buddy and subscribe to an RSS feed.

A Net-Centric Enterprise - Services -



Based on technology to dynamically discover new sources of data and services leveraging enterprise services specifications and standards.

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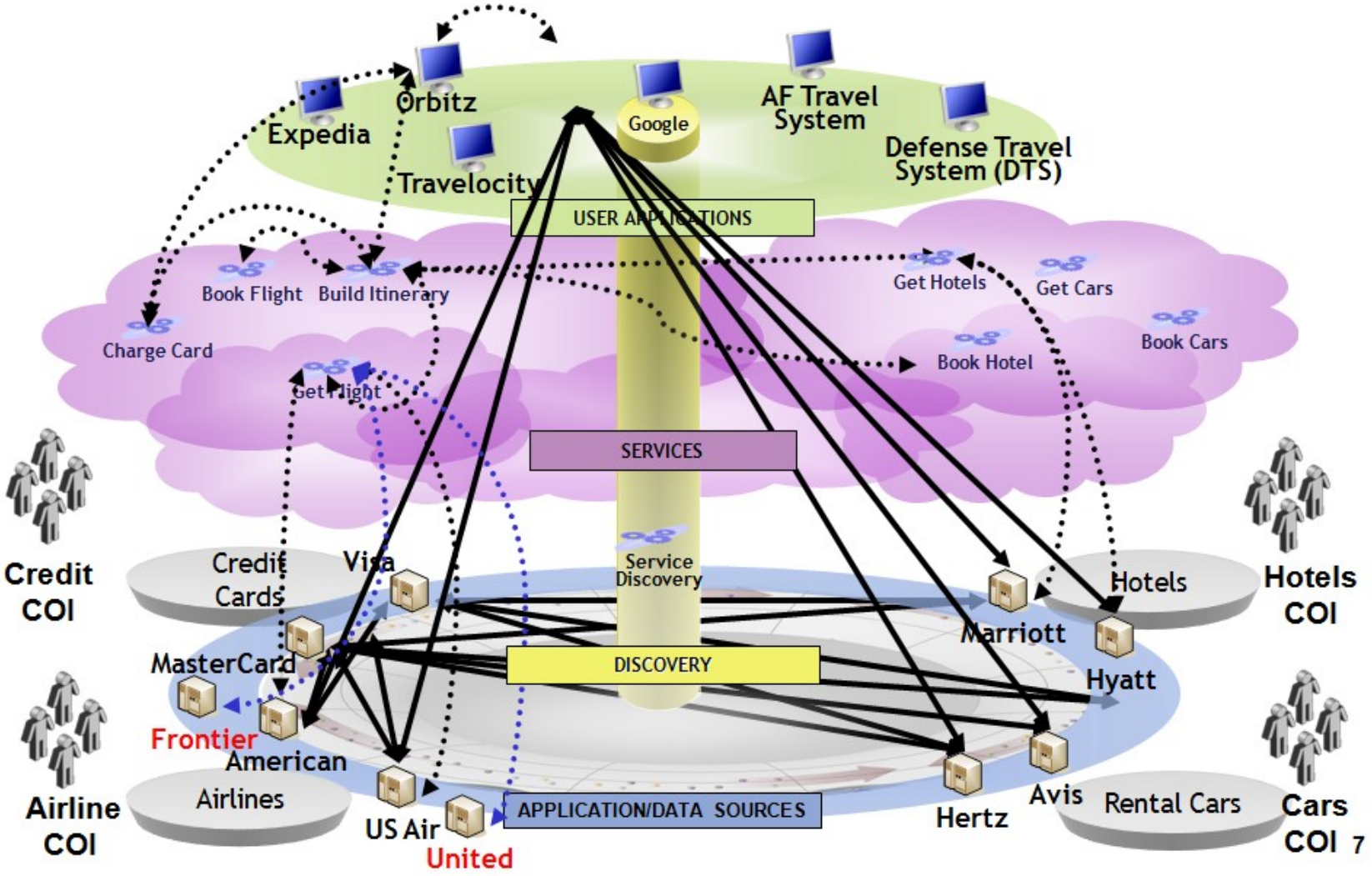
Industry Example



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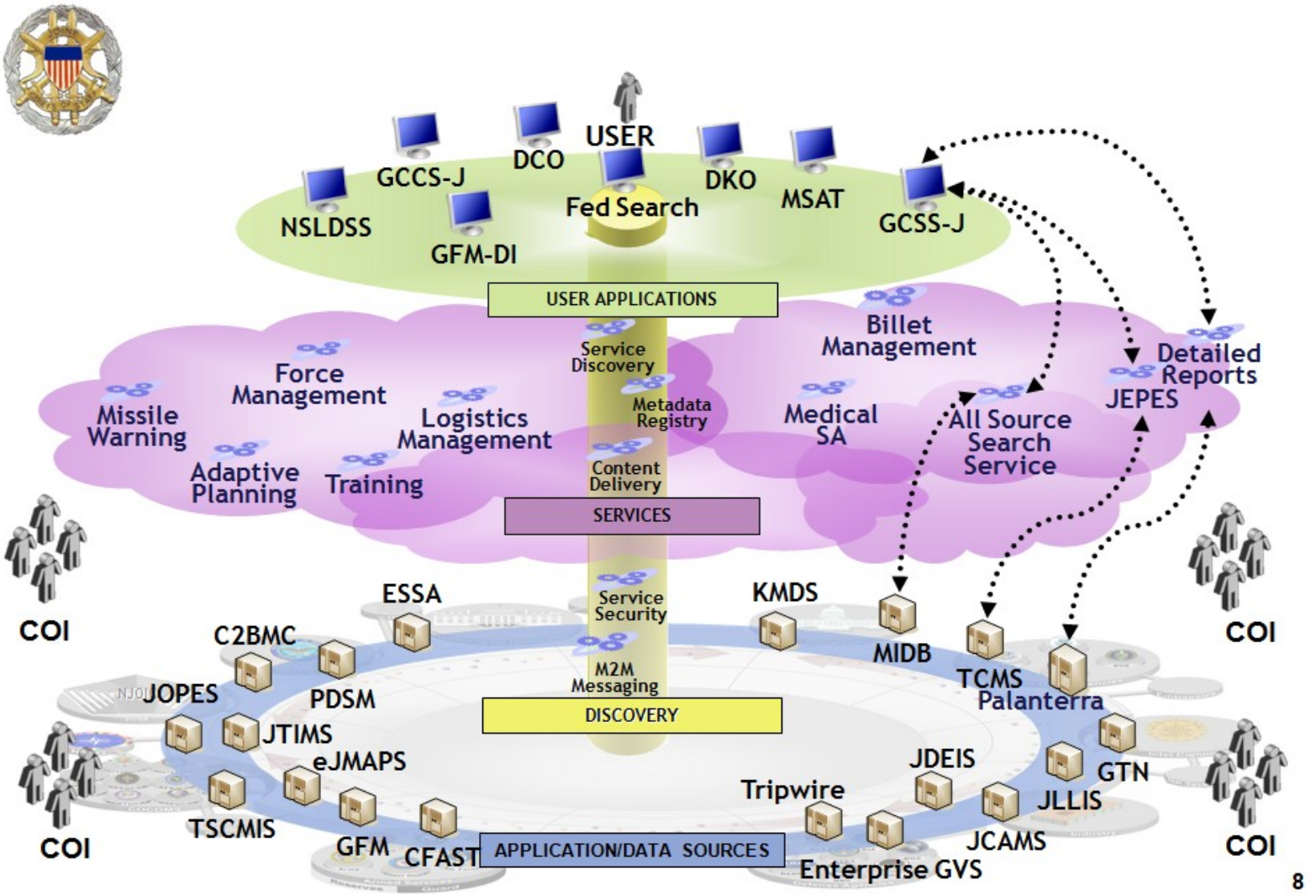
DoD Example



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Objectives

Rapid Development...of Enterprise Mission Services

- EIRI is a leading-edge effort intended to develop the **processes and procedures** to rapidly and cost-effectively deliver information sharing capabilities to the Department
- EIRI will **leverage Net-Centric Enterprise Services (NCES) standards** and capabilities in exposing data net-centrically
- EIRI will provide **shoulder-to-shoulder assistance** to help organizations implement those processes and procedures

From Systems to Services, From Programs to Capabilities

Rules for Enterprise Services in C2 JCTDs

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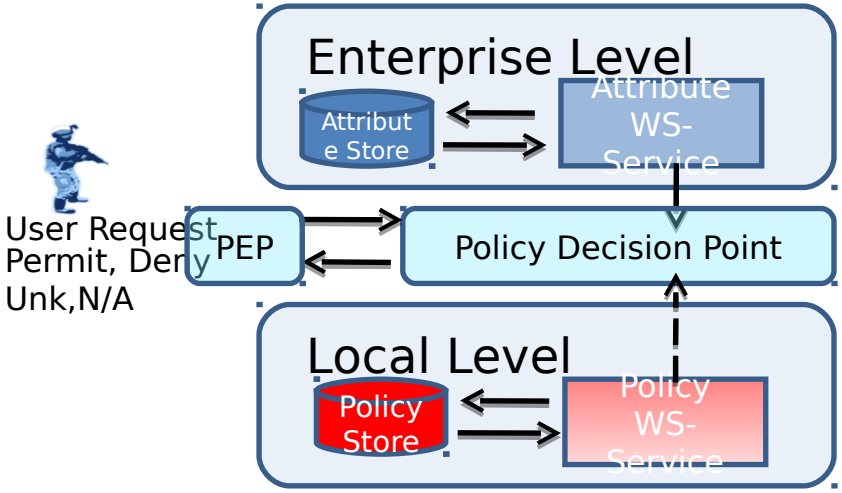
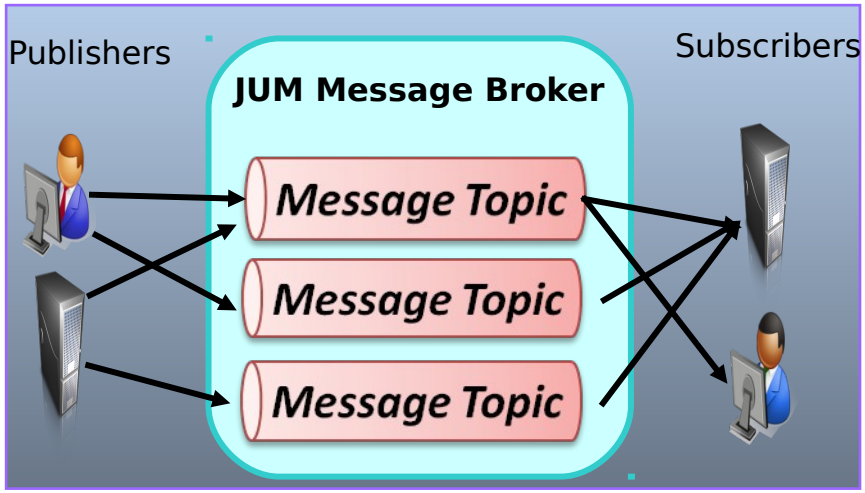
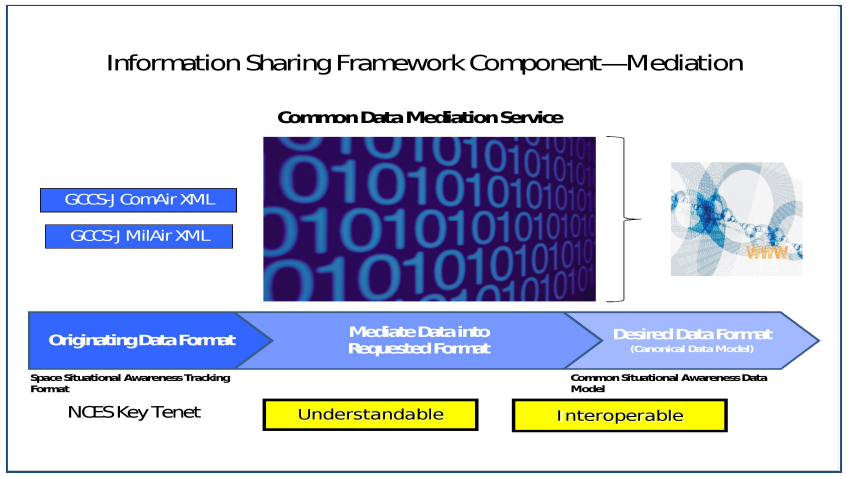
Authorization



Message Bus



Mediation Service



Data Repository

- Stores information in a centralized repository
  - Uses Xquery for access, manipulate and retrieve operations
- Searches and locates information with pinpoint accuracy
  - Extensive full-text, structured, geosp and real-time search features
- Analyzes to understand and exploit wha
  - Built in indexes to speed analysis of data
- Delivers content to users in multiple contexts
  - Send content to multiple devices and users

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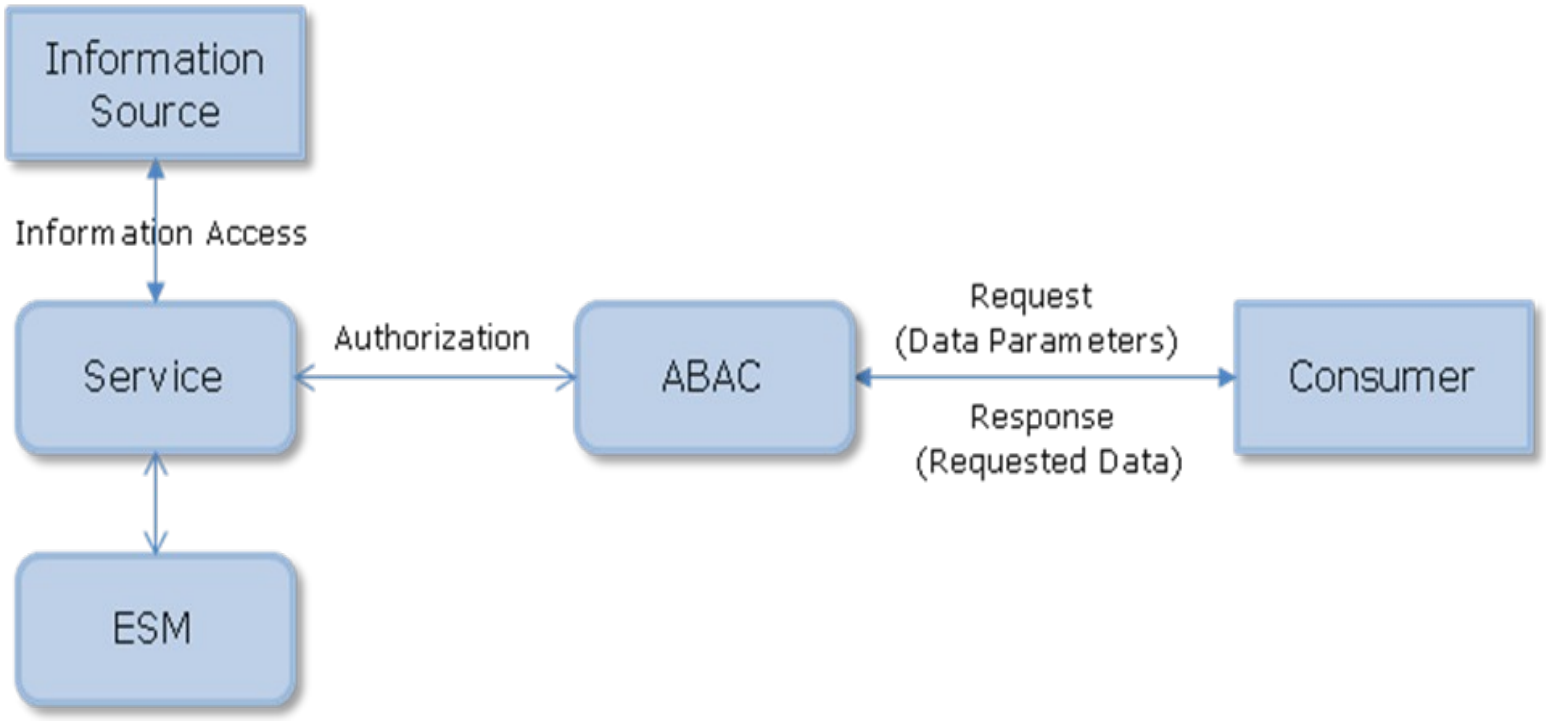
Data Exchange Design Approaches

- **Web Service (Request/Response)**
  - Use when data needed by the consumer is specific and bound by indicated parameters
- **JUM Interface (Publish/Subscribe)**
  - Joint User Messaging (JUM)
  - Use when data is frequently updated, relatively small, and relevant to a large number of users
- **SharePoint Reference Implementation**
  - Package add-on which will allows for communication with JUM
  - Use if you already have SharePoint and now wish to share data
- **Hybrid –** some combination of these design approaches

Web Service (Request/Response



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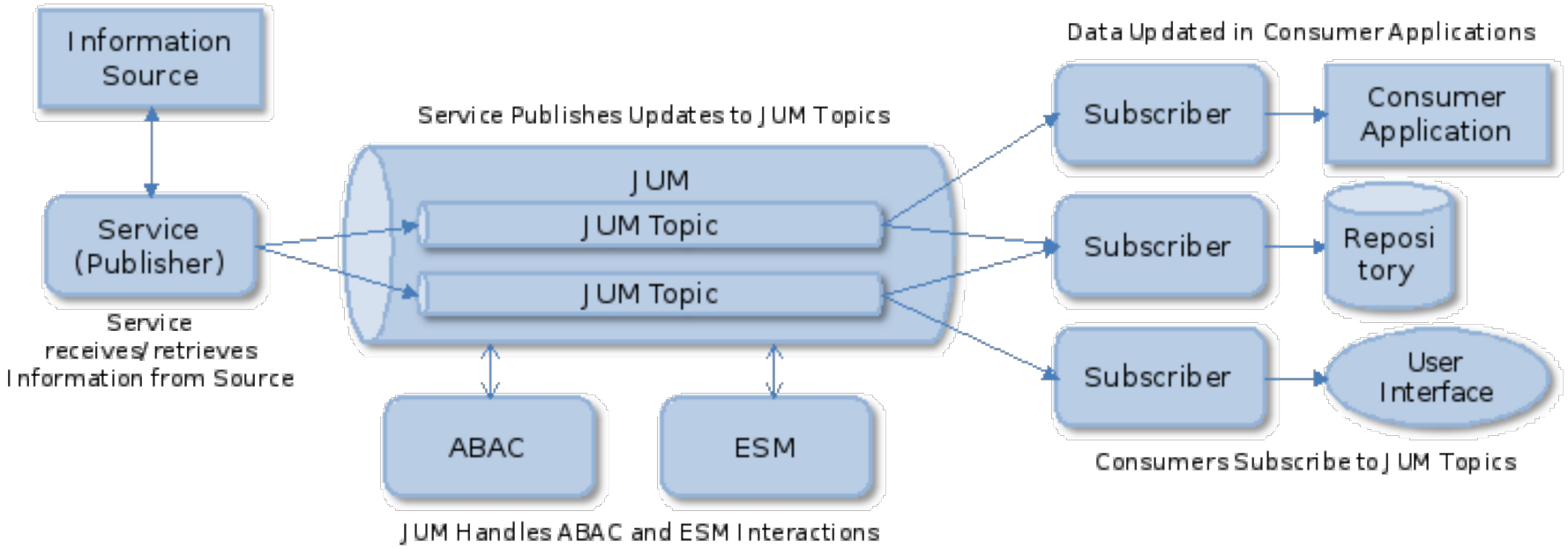
Joint User Messaging (JUM) (Publish/Subscribe)



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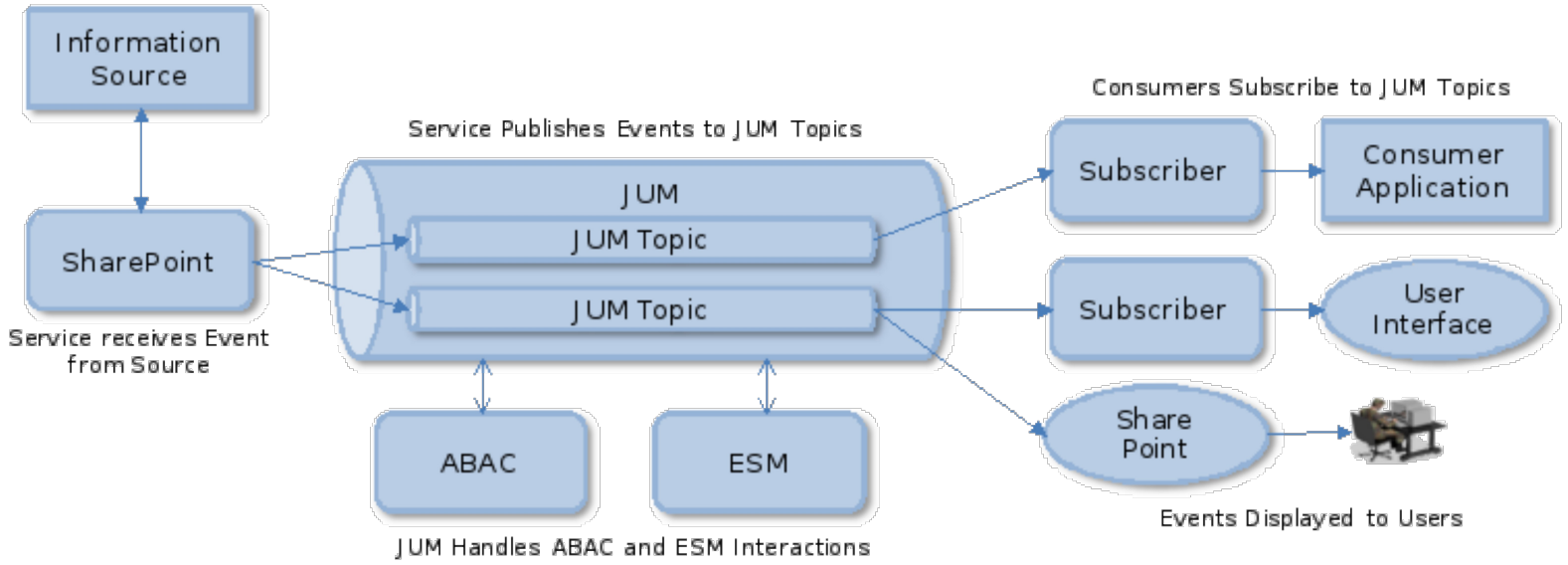
SharePoint Reference Implementation



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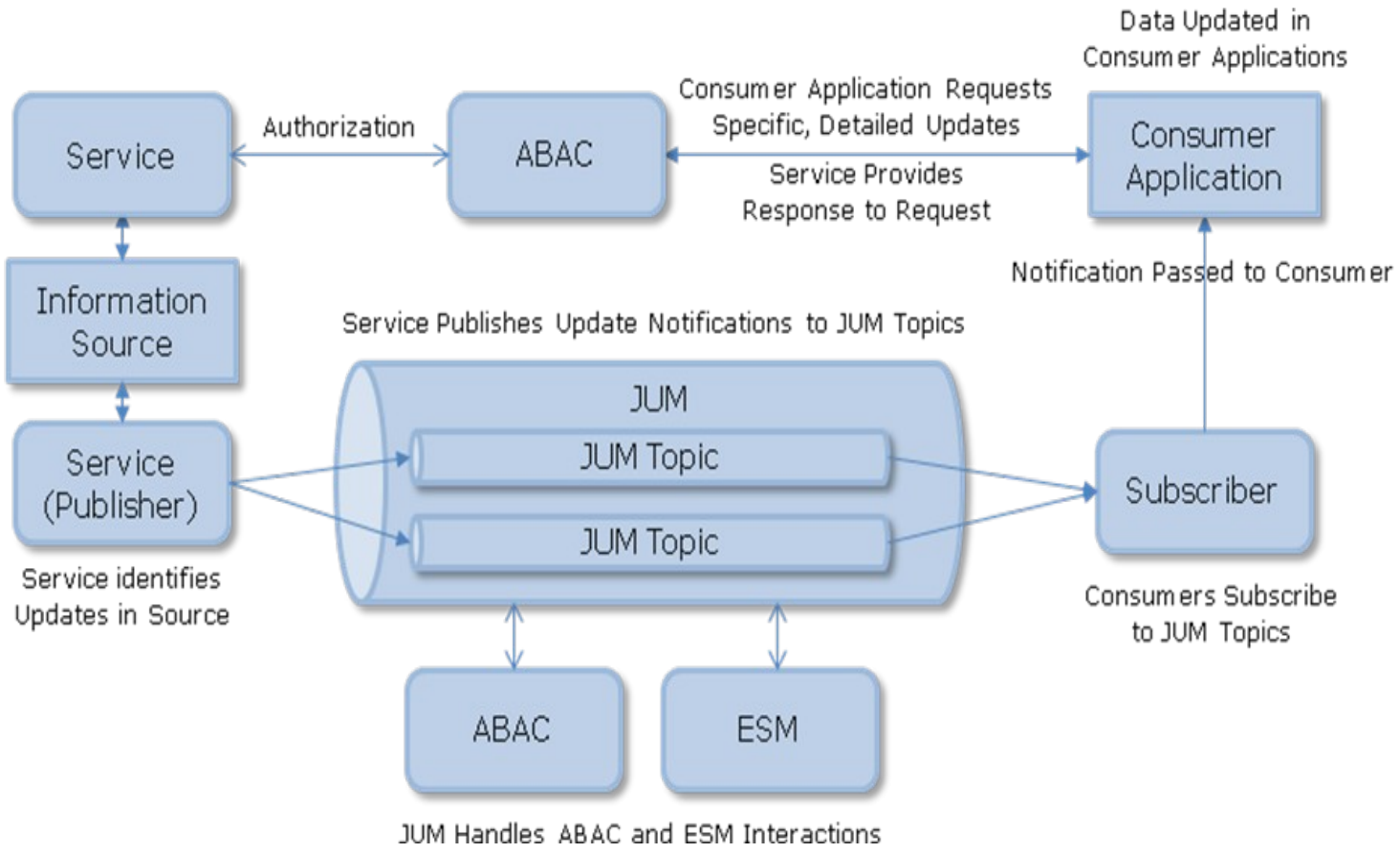
Hybrid Design



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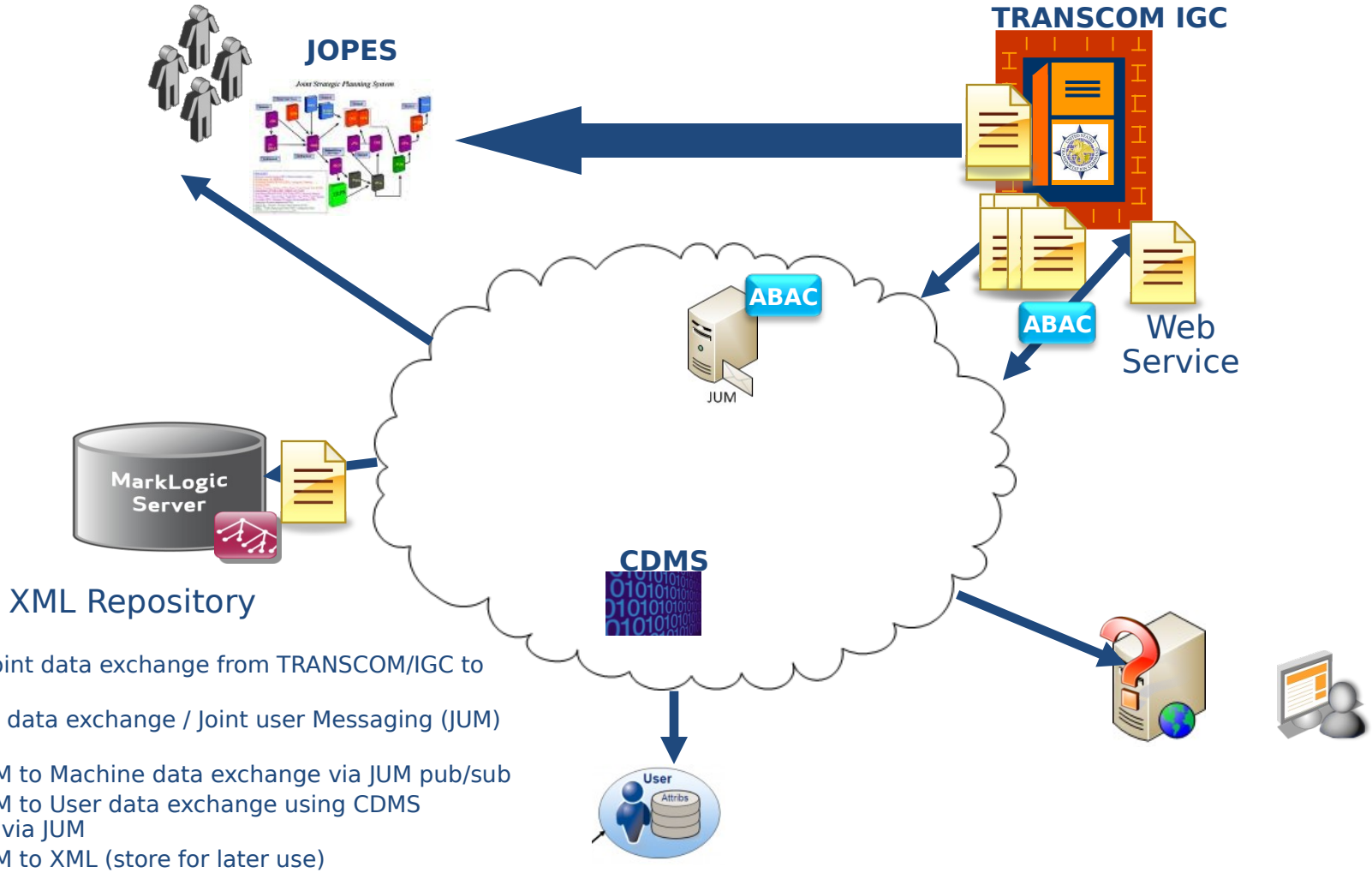
Use Case



1. Point to Point data exchange from TRANSCOM/IGC to JOPES
2. Enterprise data exchange / Joint user Messaging (JUM) and ABAC
3. TRANSCOM to Machine data exchange via JUM pub/sub
4. TRANSCOM to User data exchange using CDMS (translation) via JUM
5. TRANSCOM to XML (store for later use)
6. XML (data repository) to User (forward)
7. User to ABAC enabled Web Service with a Question (Request)
8. Web Service back to User (Response)
9. Disolve Pt To P t Connection between TRANSCOM/IGC

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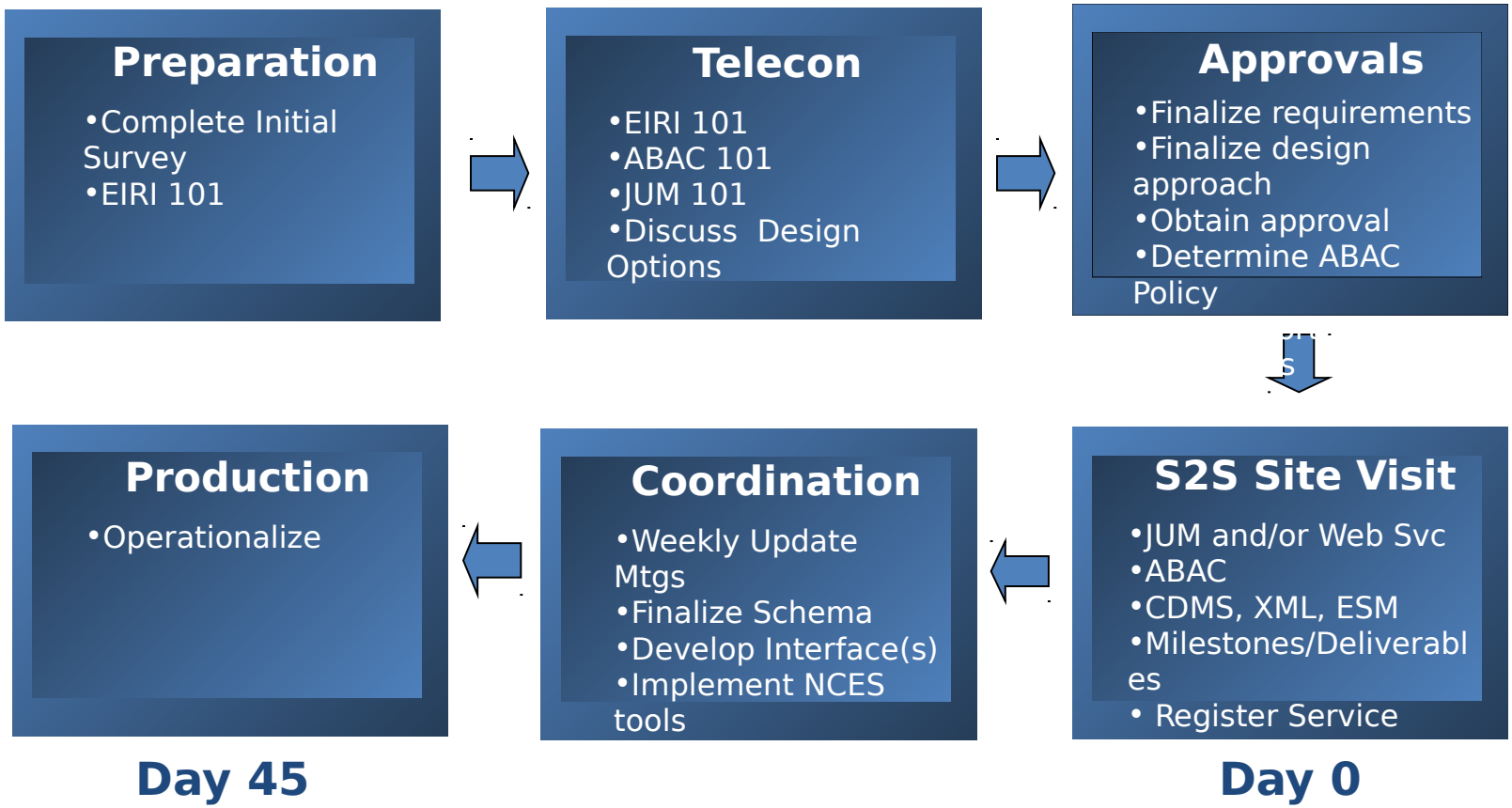
EIRI Process



Publish in 45 days - now that's rapid!

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COCOM and Partner Participation

- JFCOM
- NORTHCOM
- SOUTHCOM
- SOCOM
- TRANSCOM
- Army
- NAVY
- NII Data Pilots
- Joint Staff
- EUCOM
- AFRICOM
- HHS

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Response from Our Partners

- “The knowledge brought to the table and speed of implementation proved invaluable to the Pilot.” -- Josh Taylor, C2 Data Pilot Phase IVB Project Lead
- “Puts us on the pub/sub ground floor and this is very exciting“ -- Brig. Gen. Robert Yates, JFCOM
- “It isn’t that hard” -- Don Runnels, Asynchrony Solutions, supporting TRANSCOM J6

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In Summary

- EIRI provides **shoulder-to-shoulder engineering** and a **"how to" process** to support the rapid exposure of NCES-compliant mission services to the Enterprise
- NCES compliance, enterprise attributes, and ABAC security provide assurance that information exposed to the Enterprise is **visible, interoperable, secure, and accessible** by all authorized users
- Our ***data*** can be our ***competitive advantage*** against tomorrow's threats

"… [The] next great opportunity for us is *universal situational awareness*. Anything that disrupts the envelope -- we see it and we can act on it, whether it's in the air, on land, or underwater. Our biggest *competitive advantage* can be our knowledge."

– ADMIRAL MICHAEL MULLEN
CHAIRMAN OF THE JOINT CHIEFS OF

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EIRI Support

Contacts

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Rules for Enterprise Services in C2 JCTDs

- **Purpose : To comply with DoD Policy and Guidance for the net-centric enterprise**
- **Policy: All Joint Concept Technology Demonstrations (JCTD) within the Command and Control (C2) portfolio will use the following Enterprise services:**
  - **Attribute Based Access Control (ABAC) -** Access control method that uses identity attributes about Users (Humans and Machines) to make security access decisions to data
  - **Joint User Messaging (JUM) -** DISA enterprise messaging service
  - **Common Data Mediation Service (CDMS)**
    - Inbound data can be mediated into a canonical model, allowing data consumers to deal with consistently formatted data regardless of origination
    - Outbound data can be mediated into alternative formats as needed, providing interoperability with alternative data formats without having to couple a system to any one format
  - **XML Data Repository (Mark Logic) -** Enterprise XML repository. Single copy-of-record content storage, on top of which new information products can be created that slice, dice and re-purpose content in new ways so content is easily accessed. (Enterprise License)
- **Intent to use these four services must be documented in the Implementation Directive of new JCTDs starting in FY11 and complied with by pre-FY11 JCTDs**

Attribute Based Access Control (ABAC) Services

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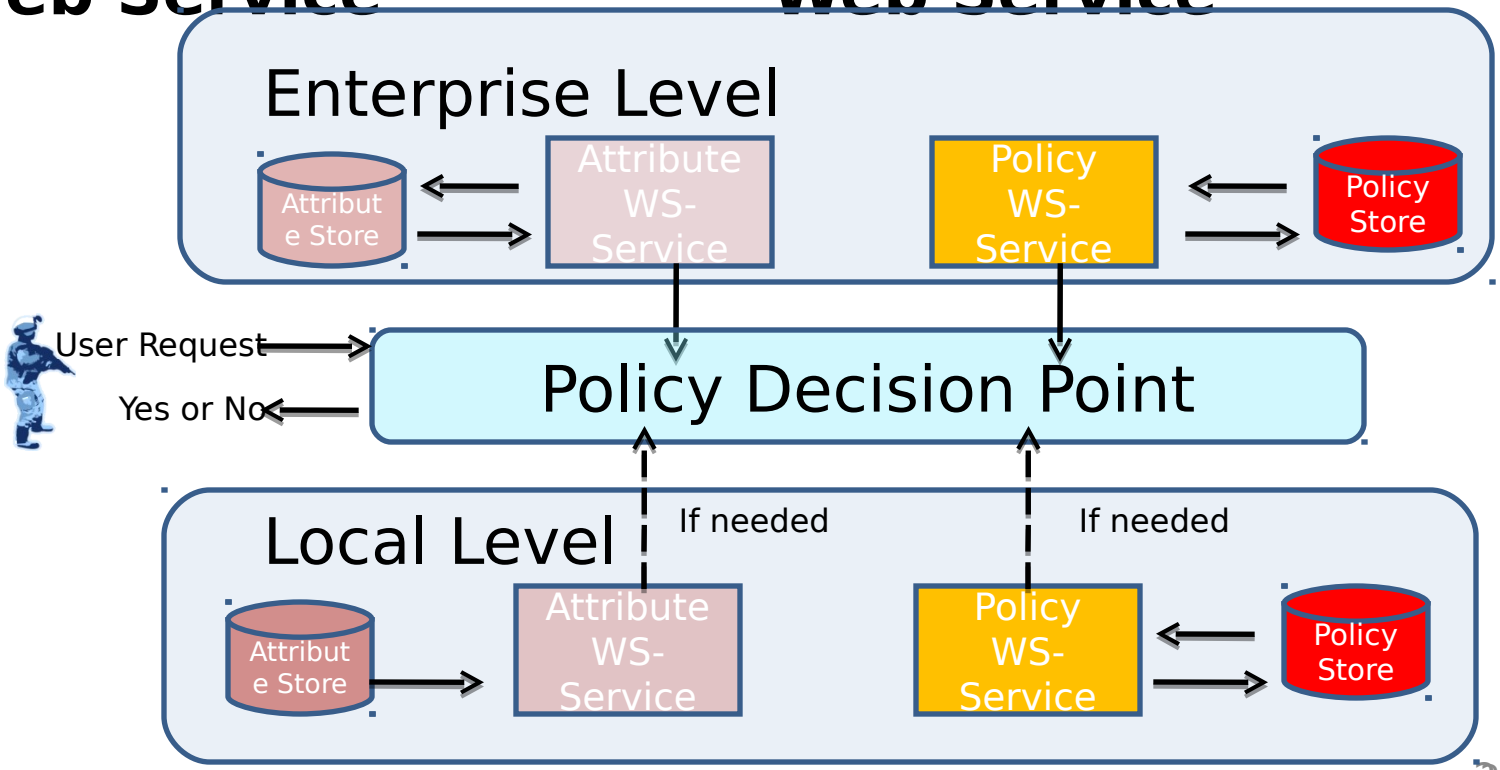
Attribute Service

- **Exposes Individual's Attributes by using a Web Service**

Policy Service

- **Exposes Policy Statements as a Web Service**



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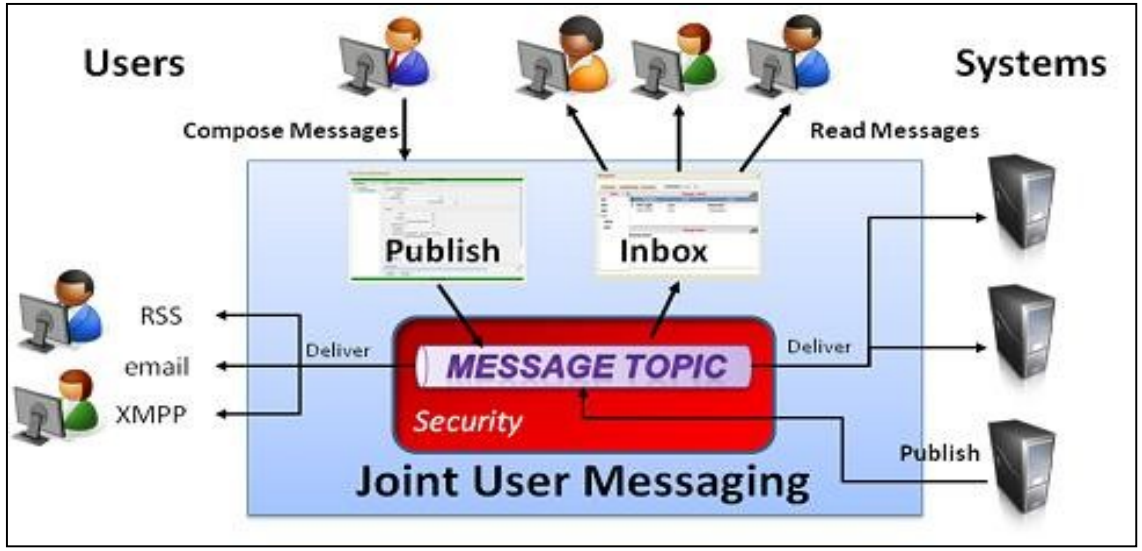
Joint User Messaging (JUM)

- Joint User Messaging (JUM) is an enterprise service to enable user-to-user, user-to-machine, and machine-to-machine messaging across the joint enterprise



- Information Distribution Suite (IDS) provides the technology platform for JUM, supplying a WS-Notification message broker, messaging bus, and web portal for user interfacing components

Publish/Subscribe/Alert instead of Point-to-Point

Enterprise Infrastructure Reference Implementations

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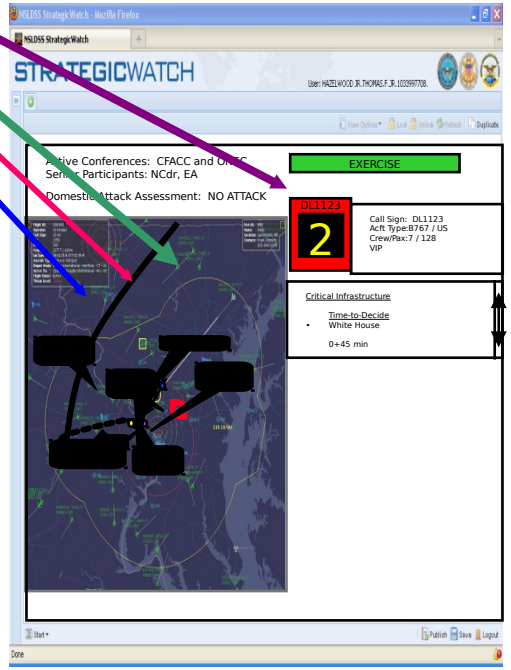
DISA GISMC
SMADS
SkiWeb
NGA Maps
TOI Tracker
AEISS (JUON)
NSLDSS
XML * Data Repository
Attribute Based Access
LAS
Policy Store
CPDP
PEP
M/IDS
CDMS
Strategic Watch Server
ERSA
NCES
NCES to JUM Bridge
Joint User Messaging (JUM)
Lincoln Labs to DECC
M2M Messaging
Real-time update & alert notification as information changes
Collaboration
Real-time voice, text, video, application sessions
Content Discovery
Access to data; improved content awareness
Service Security
Ability to operate in a secure environment
DISA DECC COLUMBUS
SIPRNet
TMSE (GCCS-J)
DISA DECC San Antonio

NSLDSS Visualization
(Strategic Watch)



* Currently XML Data Repository Not Located in the DECC

Common Data Mediation Service (CDMS)

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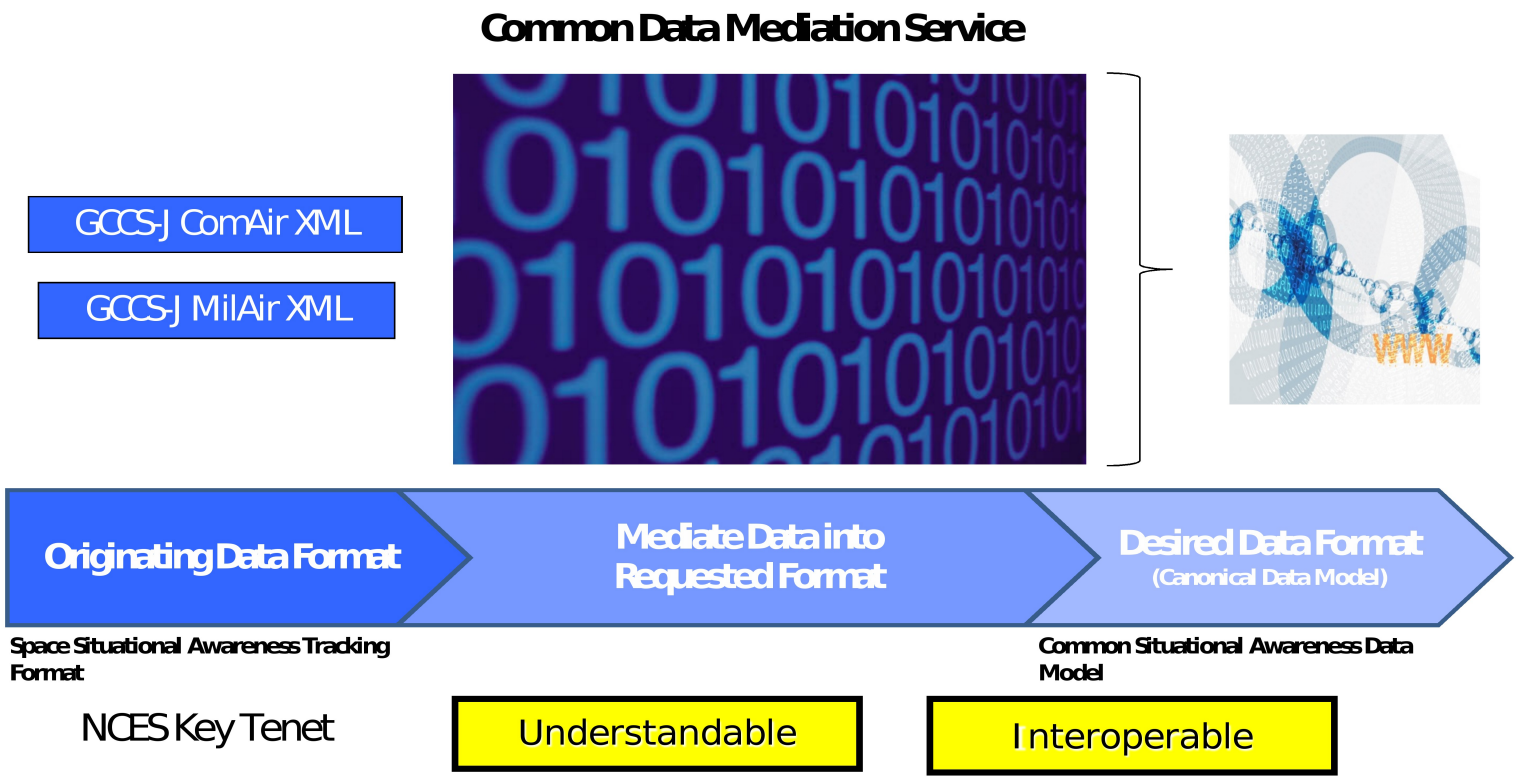
Information Sharing Framework Component—Mediation



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XML Data Repository

Commercial Based Product that:

- Stores information in a centralized repository
  - Uses Xquery for access, manipulate and retrieve operations
- Searches and locates information with pinpoint accuracy
  - Extensive full-text, structured, geospatial, and real-time search features
- Analyzes to understand and exploit what
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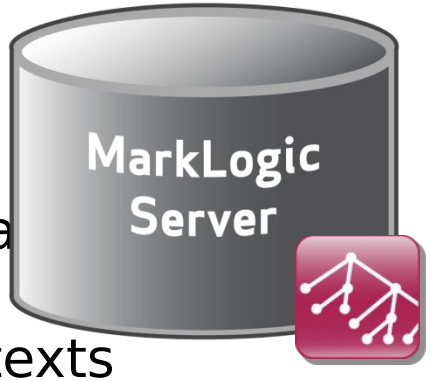

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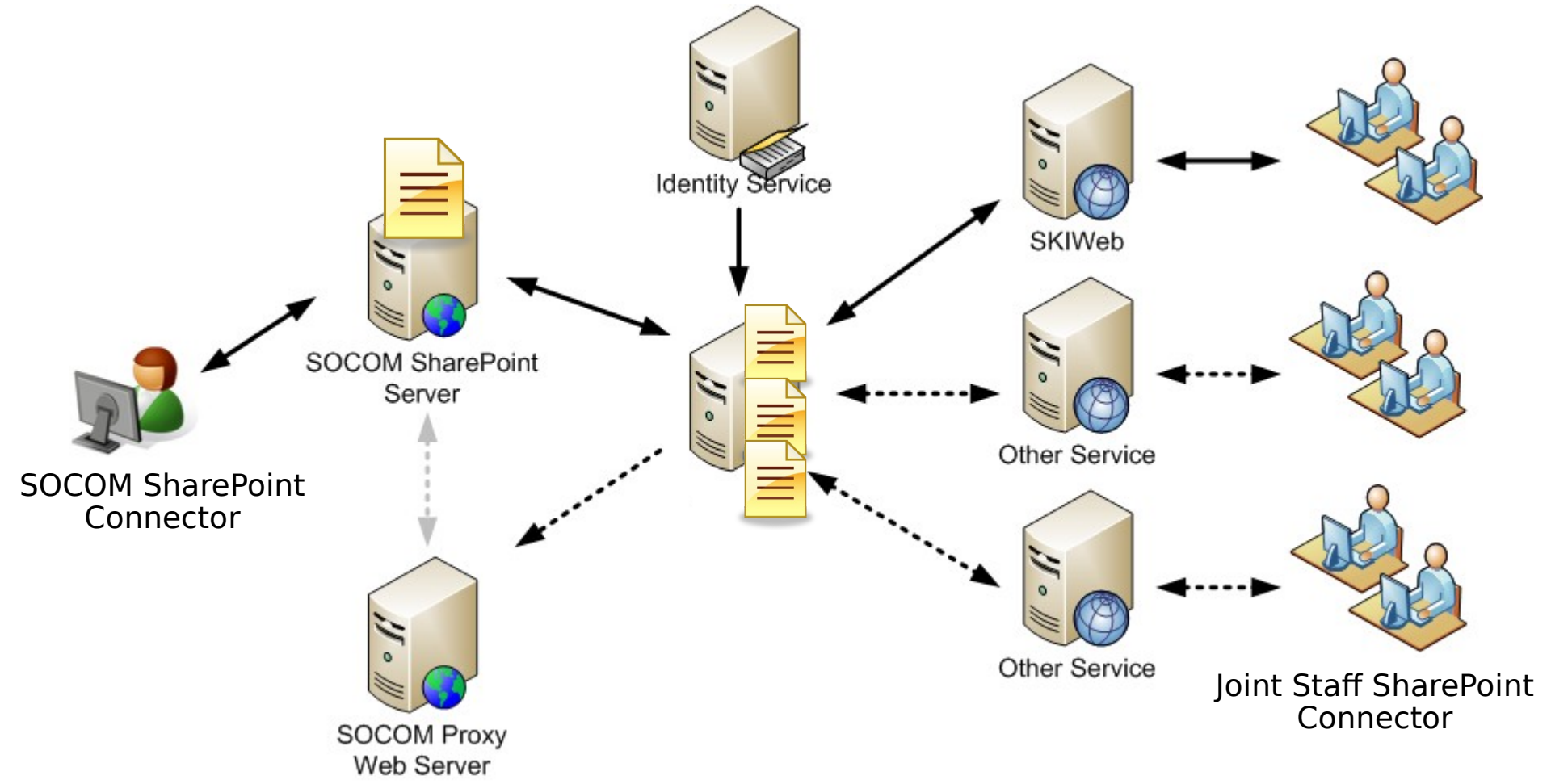
JUM - SOCOM SharePoint Integration



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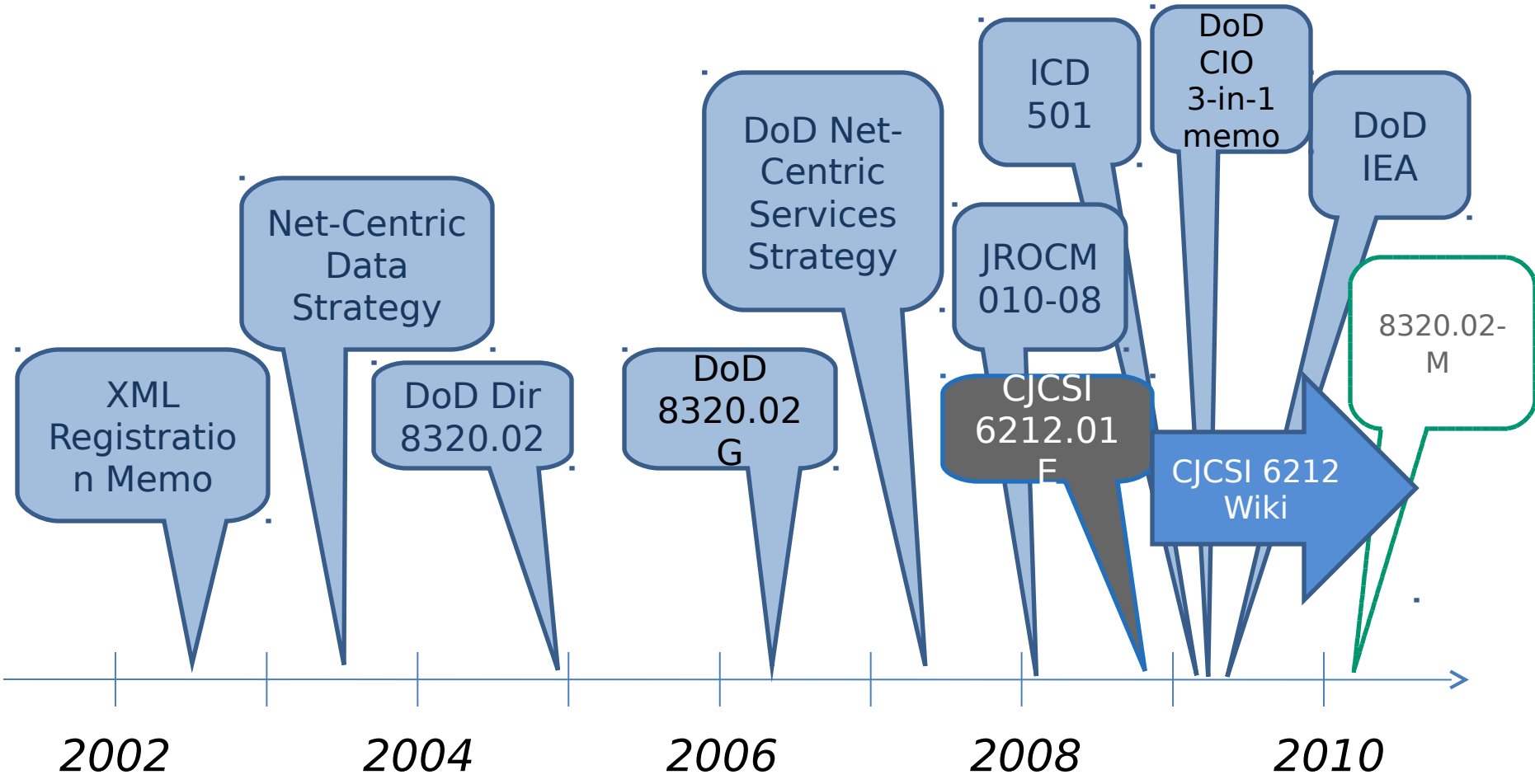
Net-Centric Guidance



8320 "It is DoD policy that: 4.1. Data is an essential enabler of network-centric warfare (NCW) and shall be made visible, accessible, and understandable to any potential user in the Department of Defense as early as possible in the life cycle to support mission objectives."